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The genera of Aphidiidae (Hymenoptera: Ichneumonoidea) in Taiwan[1]

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Abstract : A tentative key to 17 genera and subgenera of Aphidiidae of Taiwan is prepared in this paper. Three genera, *Toxares* Haliday, *Diaeretus* Foerster and *Lysiphlebus* Foerster ; and 2 species, *Toxares shigai* Takada and *Diaeretus leucopterus* (Haliday) is new to Taiwan. Diagnosis of these genera and subgenera, host-parasitoid and parasitoid-host lists of Taiwan are also presented.

The family Aphidiidae is a small group of the superfamily Ichneumonoidea. It is closely related to the subfamily Euphorinae of the Braconidae and, until recently, has been classified as a subfamily of the Braconidae. However, most workers of this group classify Aphidiidae as a distinct family, and I am much inclined to follow this arrangement. The Aphidiidae are the most important group of natural enemies of aphids. The fullgrown larvae of most genera spins a cocoon inside the empty skin of the victim whereas that of *Praon* and *Dyscritulus* make a peculiar tent like cocoon beneath the aphid skin. Moreover, both manners of pupations occurred in *Areopraon*[21]. The aphidiid parasitoids of aphids are one of the group whose utilization in biological control has given significant results in many countries. The research on aphid parasitoids has also been included in the international programs.

More than 375 species of aphidiids belonging to 48 genera and subgenera have been known to occur in the world. The aphidiid fauna of Taiwan is poorly studied now, only 11 genera and 32 species of aphidiids were recorded[1,3,6,7,23,24]. In this paper, 3 genera and 2 species are added to the aphidiid fauna of Taiwan. A number of other genera and species are presumed to be found here in the future. The key used in this paper is slightly modified from Stary (1970).

Tentative key to the genera and subgenera of Aphidiidae in Taiwan

1. Cubitus developed throughout, separating cubital cell I from discoidal cell (figs. 1, 2) 2
- Cubitus effaced frontally or entirely, cubital cell I and discoidal cell I confluent (figs. 3-13) 4

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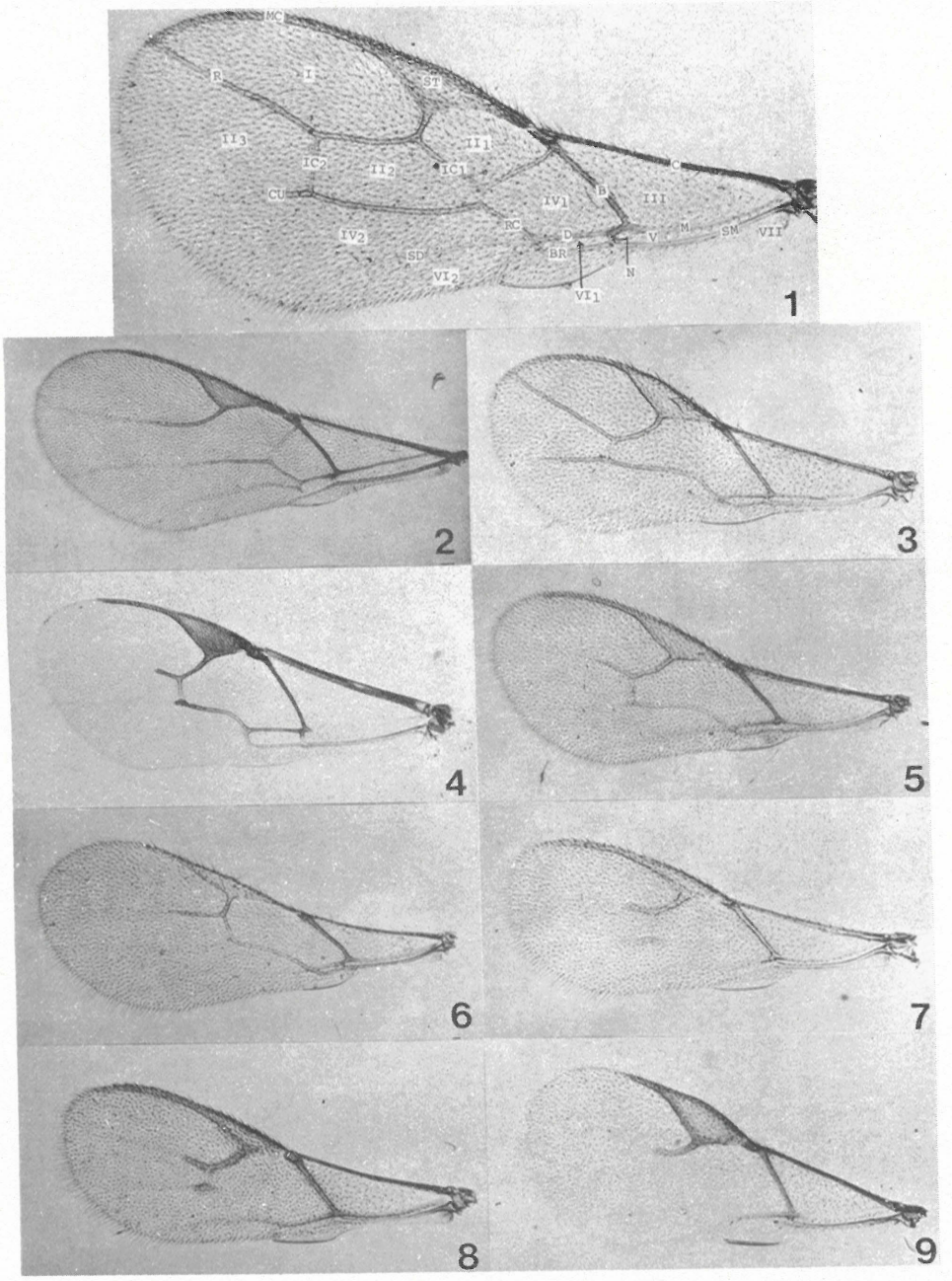
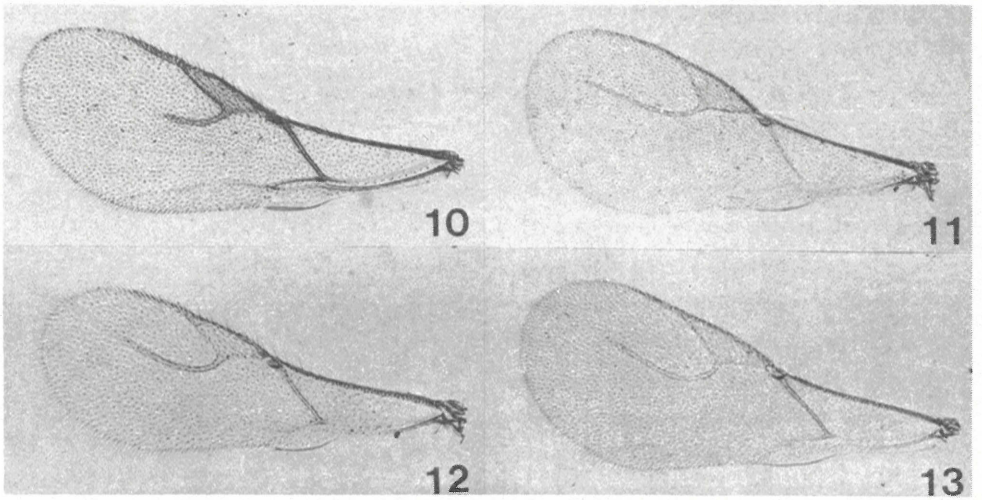
2. Both intercubiti developed (fig. 1) 3
– Both intercubiti effaced (fig. 2). Propodeum smooth ; ovipositor sheath sparsely haired ..... *Praon* Haliday
3. Ovipositor sheath and ovipositor straight or slightly curved downwards ; antenna 10 or 11-segmented in both sexes ; abdomen lanceolate ..... *Ephedrus* Haliday
Ovipositor sheath curved downwards, rather broadened, deltoid and trifid at extremity ; ovipositor curved downwards ; antenna 15 to 20-segmented in female and 18 to 23-segmented in male ; abdomen rounded ..... *Toxares* Haliday
4. Cubital and discoidal cells confluent, distinctly completed by 2nd intercubitus along their external margin (2nd intercubitus sometimes nearly colourless but distinct) (figs. 3-8) 5
Cubital and discoidal cells confluent, open, not completed by 2nd intercubitus along their external margin (figs. 9-13) 11
5. Radial cell distinctly complete (fig. 3). Eye large ; antenna filiform ; notaulix effaced ; propodeum partially carinated ; abdomen lanceolate ; tergite I distinctly longer than wide at spiracles ..... *Archaphidus* Stary & Schlinger
– Radial cell incomplete (figs. 4-8) 6
6. Confluent cubital and discoidal cells distinctly separated on lower margin by fused recurrent vein and cubitus (figs. 4-6). 7
Confluent cubital and discoidal cells on the lower margin open, the rest of cubitus visible only under the 2nd intercubitus (figs. 7, 8) 10
7. Ovipositor sheath slightly curved upwards 8
– Ovipositor sheath curved downwards ..... *Monoctonus* Haliday
8. Carinae on propodeum forming large wide pentagonal areola ..... *Pauesia* Quilis, 9
– Carinae on propodeum forming very narrow, small, central areola. ..... *Aphidius* Nees
9. Ovipositor sheath wide, apex of the ovipositor lanceolate ..... *Pauesia* (*Paraphidius*) Stary
– Ovipositor sheath slender, apex of the ovipositor acute ..... *Pauesia* (s. str.)
10. Tergite I with more or less developed central tubercle only, without central carina or coarse rugosities ..... *Lysiphlebus* Foerster
– Tergite I with more or less distinct central carina, more or less rugose ..... *Lysiphlebia* Stary & Schlinger
11. Ovipositor sheath curved downwards, terminal abdominal sternite sometimes with 1-2 prongs 12
– Ovipositor sheath straight or slightly curved upwards, terminal abdominal sternite without posterior prongs 16
12. Terminal abdominal sternite with 1-2 longer or shorter prongs. 13
– Terminal abdominal sternite without prongs ..... *Lipolexis* Foerster
13. Terminal abdominal sternite with 1 upward curved prong ..... *Bioxys* Stary & Schlinger
– Terminal abdominal sternite with 2 upward curved to nearly straight prongs ... *Trioxys* Haliday, 14
14. Tergite I with primary (=spiracular) and secondary tubercles (figs. 15, 16), the latter sometimes poorly visible being almost fused with primary tubercles 15
– Tergite I with primary tubercles only (fig. 14) ..... *Trioxys* (s. str.)
15. Prongs of the last sternite beginning at the apex of sternite (fig. 18) ..... *Trioxys* (*Binodoxys*) Mackauer
– Prongs of the last sternite beginning near the base of sternite (fig. 19) ..... *Trioxys* (*Fissicaudus*) Stary & Schlinger

16. Notaulix entirely effaced ; propodeum with more or less distinct wide central areola.....
.....*Diaeretus* Foerster

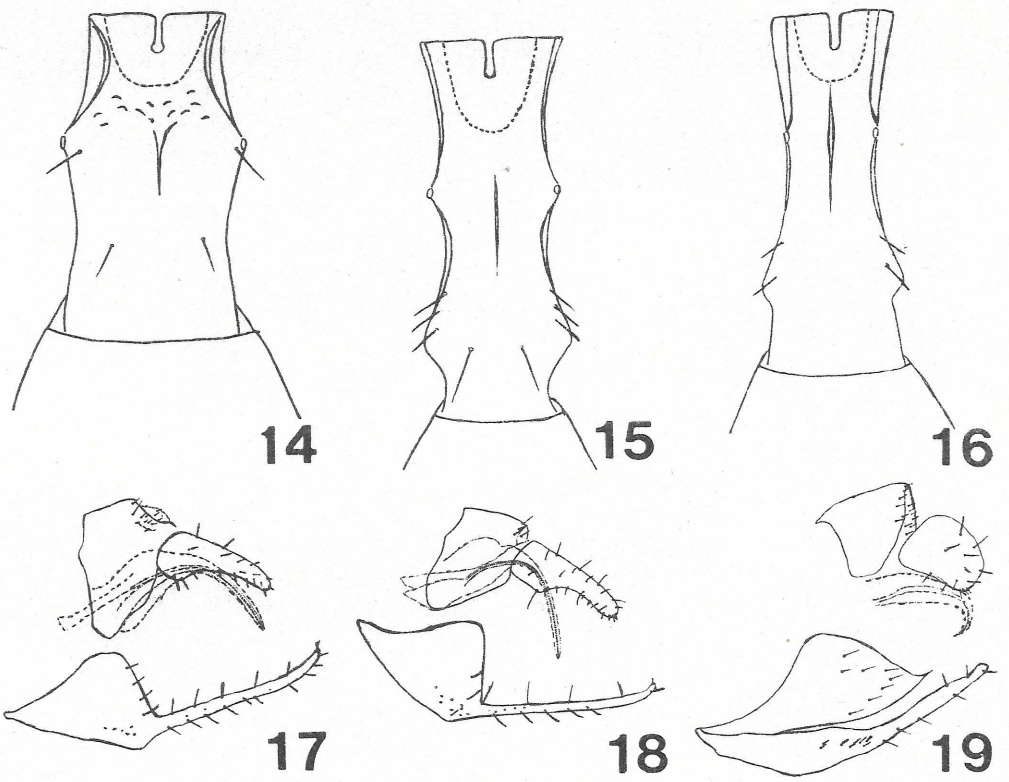
Notaulix distinct anteriorly ; propodeum with distinct small central areola.....*Diaeretiella* Stary



figs. 1-9, Fore wings : 1, *Ephedrus plagiator* (Veins : B, Basal ; C, Costa ; CU, Cubitus ; D, Discoideus ; IC, Intercubitus ; M, Medius ; MC, Metacarp ; N, Nervulus ; R, Radius ; RC, Recurrent ; SD, Subdiscoideus ; SM, Submedius ; ST, Stigma. Cells : I, Radial ; II, Cubital ; III, Medial ; IV, Discoidal ; V, Submedial ; VI, Brachial ; VII, Anal.) ; 2. *Praon orientale* ; 3, *Archaphidus greenideae* ; 4. *Pauesia unilachni* ; 5, *Aphidius gifuensis* ; 6, *Monoctonus woodwardiae* ; 7, *Lysiphlebia japonica* ; 8, *Lysiphlebus* sp. ; 9, *Diaeretus leucopterus*.



figs. 10–13. Fore wings : 10, *Diaeretiella rapae* ; 11, *Lipolexis gracilis* ; 12, *Trioxys auctus* ; 13, *Bioxys* sp.



figs. 14–16. Petiole of *Trioxys* : 14, *auctus* ; 15, *indicus* ; 16, *confucius*. 17–19, Female genitalia of *Trioxys* : 17, *auctus* ; 18, *indicus* ; 19, *confucius*.

Genus **Ephedrus** Haliday

Aphidius (*Ephedrus*) Haliday 1833 : 261, 485. Type species : *Bracon plagiator* Nees.
Elassus Wesmael 1835 : 85. Type species : *Elassus parcicornis* Wesmael.

Diagnosis : Head transverse. Antenna 10 or 11-segmented in both sexes. Notaulix at least partly distinct. Wing-venation as figured (fig. 1). Propodeum areolated, disc of areolae smooth, sometimes slightly rugose along carinae. Ovipositor sheath long and narrow, gradually and evenly narrowing towards apex, with scattered hairs.

Distribution : Holarctic, Ethiopian, Oriental and Australian regions.

Seven species, *E. lacertosus* (Haliday), *E. nacheri* Quilis, *E. niger* Gautier et al. , *E. orientalis* Stary & Schlinger, *E. persicae* Froggatt, *E. plagiator* (Nees) and *E. robustus* Liu have been known in Taiwan.

Genus **Toxares** Haliday

Aphidius (*Trionyx*) Haliday 1833 : 487. Type species : *Aphidius* (*Trionyx*) *deltiger* Haliday.
Toxares Haliday 1840 *in* Westwood 1840 : 65. Type species : *Aphidius* (*Trionyx*) *deltiger* Haliday.

Diagnosis : Head subquadrate. Antenna 15 to 20-segmented in female and 18 to 23-segmented in male. Notaulix distinct anteriorly. Propodeum completely areolated. Wing-venation is similar to *Ephedrus* Haliday. Ovipositor sheath curved downwards, rather broadened, deltoid and trifid at extremity.

Distribution : Palearctic and Oriental regions.

Toxares shigai Takada, the genus and species are new to Taiwan (Ilan : Jenche hot springs, 1♀, 31. XII. 1978 (K. C. Chou) ; Taichung : Sheng-kuang, 1850m, 1♂, 20. IX. 1968 (K. S. Lin)).

Genus **Praon** Haliday

Aphidius (*Praon*) Haliday 1833 : 483. Type species : *Bracon exoletus* Nees.
Bracon (*Achoristus*) Ratzeburg 1852 : 31. Type species : *Bracon* (*Achoristus*) *aphidiiformis* Ratzeburg.
Aphidaria Provancher 1886 : 151. Types pecies : *Aphidaria simulans* Provancher.

Diagnosis : Head subcubical. Antenna 14 to 23-segmented in female and 16 to 26-segmented in male. Notaulix distinct throughout. Propodeum smooth. Wing-venation as figured (fig. 2). Ovipositor sheath nearly straight to slightly curved upwards, slenderly triangular, pointed at apex, with sparse hairs.

Distribution : Holarctic and Oriental regions.

Two species, *P. dorsale* (Haliday) and *P. orientale* Stary & Schlinger have been known in Taiwan.

Genus **Pauesia** Quilis

Pauesia Quilis 1931 : 67. Type species : *Pauesia albuferensis* Quilis.

Diagnosis : Head transverse. Antenna 16 to 29-segmented in female and 19 to 32-seg-

mented in male. Notaulix more or less distinct. Wing-venation as figured (fig. 4). Propodeum with large wide pentagonal areola. Ovipositor sheath more or less curved upwards to nearly straight.

Distribution : Holarctic, Ethiopian and Oriental regions.

Pauesia Quilis consists of the 2 subgenera, *Paraphidius* Stary and *Pauesia* s. str. Both of them were recorded in Taiwan.

Subgenus **Paraphidius** Stary

Aphidius (*Paraphidius*) Stary 1958 : 56. Type species : *Aphidius californicus* Ashmead.

Diagnosis : Antenna 18 to 29-segmented in female and 20 to 32-segmented in male. Ovipositor sheath wide, apex of the ovipositor lanceolate.

Distribution : Holarctic, Ethiopian and Oriental regions.

Two species, *P. laticeps* (Gahan) and *P. salignae* (Watanabe) have been known in Taiwan.

Subgenus **Pauesia** s. str.

Pauesia (*Pauesia*) Stary 1976 : 111. Type species : *Pauesia albuferensis* Quilis.

Diagnosis : Antenna 16 to 23-segmented in female and 19 to 29-segmented in male. Ovipositor sheath slender, apex of the ovipositor acute.

Distribution : Holarctic and Oriental regions.

Only *P. unilachni* (Gahan) has been known in Taiwan.

Genus **Diaeretus** Foerster

Diaeretus Foerster 1862 : 249. Type species : *Aphidius leucopterus* Haliday.

Diagnosis : Head strongly transverse. Antenna 15 or 16-segmented in female and 16 to 18-segmented in male. Notaulix effaced. Wing-venation as figured (fig. 9). Propodeum with central carina and its bifurcation distinctly developed. Ovipositor sheath wide, comparatively short and slightly narrowed at apex, somewhat curved downwards.

Distribution : Palearctic and Oriental regions.

Only *D. leucopterus* (Haliday), has been known in the world. On this occasion I given Taiwan as a new locality of this species (Taipei Botanical Garden, 1♀, 19. I. 1978 (C. C. Tao), & Taoyuan : Chungli, 3♀, 9. III. 1977 (W. J. Wu), ex *Eulachnus thunbergii* on *Pinus*).

Genus **Archaphidus** Stary & Schlinger

Archaphidus Stary & Schlinger 1967 : 30. Type species : *Archaphidus greenideae* Stary & Schlinger.

Diagnosis : Head transverse. Antenna 17-segmented in female and 18-segmented in male. Notaulix effaced. Wing-venation as figured (fig. 3). Propodeum partly carinated. ovipositor sheath curved upwards.

Distribution : Oriental region.

This genus represented only by a single species, *A. greenideae* Stary & Schlinger in the world.

Genus **Aphidius** Nees

Incubus Schrank 1802 : 315. Type species : *Ichneumon aphidum* Linnaeus.
Aphidius Nees 1818 : 302. Type species : *Aphidius avenae* Haliday.
Theracmion Holmgren 1872 : 99. Type species : *Theracmion arcticus* Holmgren.
Aphidius (*Euaphidius*) Mackauer 1961 : 10. Type species : *Aphidius pterocommae* Ashmead.

Diagnosis : Head transverse. Antenna 12 to 21-segmented in female and 15 to 22-segmented in male. Notaulix distinct at the ascendent part of mesoscutum. Wing-venation as figured (fig. 5). Propodeum areolated, with narrow and small central areola. Ovipositor sheath comparatively short, slightly curved upwards, sparsely haired.

Distribution : Cosmopolitan.

Six species, *A. absinthii* Marshall, *A. amamioshimensis* Takada, *A. colemani* Viereck, *A. ervi* Haliday, *A. gifuensis* Ashmead and *A. salicis* Haliday have been known in Taiwan.

Genus **Diaeretiella** Stary

Diaeretiella Stary 1960 : 242. Type species : *Aphidius rapae* M'Intosh.

Diagnosis : Head transverse. Antenna 13 to 15-segmented in female and 15 to 18-segmented in male. Notaulix distinct anteriorly. Wing-venation as figured (fig. 10). Propodeum distinctly areolated. Ovipositor sheath straight or slightly curved upwards, sparsely haired.

Distribution : Cosmopolitan.

This genus represented only by a cosmopolitan species, *D. rapae* (M'Intosh) in the world.

Genus **Lysiphlebus** Foerster

Lysiphlebus Foerster 1862 : 248. Type species : *Aphidius* (=*Bracon*) *dissolutus* (Nees).
Aphidaria Provancher 1888 : 396. Type species : *Aphidaria basilaris* Provancher.

Diagnosis : Head transverse. Antenna 11 to 14-segmented in female and 14 to 17-segmented in male. Notaulix distinct at the ascendent part of mesoscutum. Wing-venation as figured (fig. 8). Propodeum entirely smooth or with 2 short divergent carinae at lower part. Tergite I widerly or prolongatedly triangular, smooth, with central and more or less prominent lateral-spiracular tubercles. Ovipositor sheath triangularly prolongated, slightly arcuate, slightly pointed to somewhat angular at apex.

Distribution : Almost cosmopolitan.

This genus is new to Taiwan.

Genus **Lysiphlebia** Stary & Schlinger

Lysiphlebia Stary & Schlinger 1967 ; 68. Type species ; *Lysiphlebus japonicus* Ashmead.

Diagnosis : Head transverse. Antenna 12 to 14-segmented in female and 14 to 17-segmented in male. Notaulix distinct at the ascendent part of mesoscutum. Wing-venation as figured (fig. 7). Propodeum entirely carinated, with medium sized (narrow) central areola. Tergite I slender or square, coarsely rugose, usually with longitudinal carina at the middle part. Ovipositor sheath very slightly curved upwards, gradually narrowing and rounded at apex .

Distribution : Palearctic and Oriental region.

Only *L. japonica* (Ashmead) has been known in Taiwan.

Genus **Monoctonus** Haliday

Aphidius (*Monoctonus*) Haliday 1833 : 261, 487. Type species : *Aphidius* (*Monoctonus*) *caricis* Haliday.

Aphidileo Rondani 1888 : 14. Type species : *Aphidius resolutus* Nees.

Diagnosis : Head subcubical. Antenna 13 to 16-segmented in female and 15 to 17-segmented in male. Notaulix distinct anteriorly. Wing-venation as figured (fig. 6). Propodeum with distinct central pentagonal areola or only with two divergent carinae in lower part. Ovipositor sheath curved downwards, plougshare-shaped.

Distribution : Holarctic and Oriental region.

Monoctonus Haliday consists of the 3 subgenera, *Monoctonus* s. str. , *Paramonoctonus* Stary and *Harkeria* Cameron. Only *M.* (*Monoctonus*) *woodwardiae* Stary & Schlinger has been known in Taiwan.

Genus **Lipolexis** Foerster

Lipolexis Foerster 1862 : 249. Type species : *Lipolexis gracilis* Foerster.

Gynocryptus Quilis 1931 : 27. Type species : *Gynocryptus pieltaini* Quilis.

Diagnosis : Head transverse to subquadrate. Antenna 12-segmented in female and 13-segmented in male. Notaulix distinct at the ascendent part of mesoscutum. Wing-venation as figured (fig. 11). Propodeum areolated. Ovipositor sheath curved downwards.

Distribution : Palearctic and Oriental regions.

Two species, *L. gracilis* Foerster and *L. scutellaris* Mackauer have been known in Taiwan.

Genus **Trioxys** Haliday

Aphidius (*Trioxys*) Haliday 1833 : 261. Type species : *Aphidius cirsii* Curtis.

Misaphidius Rondani 1877 : 185. Type species : *Misaphidus aphidiperda* Rondani.

Neuropenes Provancher 1886 : 151. Type species : *Neuropenes ovalis* Provancher.

Diagnosis : Head transverse. Antenna 10 to 12-segmented in female and 12 to 14-segmented in male. Notaulix distinct at the ascendent part of mesoscutum. Wing-venation as figured (fig. 12). Propodeum smooth or areolated. Ovipositor sheath curved downwards. Last sternite of female with a pair of simple prongs.

Distribution : Cosmopolitan.

Trioxys Haliday consists of the 5 subgenera, *Betuloxys* Mackauer, *Trioxys* s. str. ,

Pectoxys Mackauer ; *Binodoxys* Mackauer and *Fissicaudus* Stary & Schlinger, of which *Trioxys*, *Binodoxys* and *Fissicaudus* have been known in Taiwan.

Subgenus **Trioxys** s. str.

Trioxys (*Trioxys*) Mackauer 1959 : 149. Type species : *Aphidius cirsii* Curtis.

Diagnosis : Antenna 11 or 12-segmented in female and 12 to 14-segmented in male. Propodeum smooth or areolated. Tergite I with primary tubercles only (fig. 14). Prongs beginning at the apex of last sternite (fig. 17).

Distribution : Holarctic and Oriental regions.

Two species, *T. auctus* (Haliday) and *T. shivaphis* Takada have been known in Taiwan.

Subgenus **Binodoxys** Mackauer

Trioxys (*Binodoxys*) Mackauer 1960 : 141. Type species : *Aphidius* (*Trioxys*) *angelicae* Haliday.

Diagnosis : Antenna 10 or 11-segmented in female and 12 or 13-segmented in male. Propodeum more or less areolated. Tergite I with primary and secondary tubercles (fig. 15), the latter sometimes poorly visible being almost fused with primary tubercles. Prongs beginning at the apex of last sternite (fig. 18).

Distribution : Holarctic and Oriental regions.

Five species, *T. carinatus* Stary & Schlinger, *T. communis* Gahan, *T. indicus* Subba Rao & Sharma, *T. struma* Gahan and *T. toxopterae* Takada have been known in Taiwan.

Subgenus **Fissicaudus** Stary & Schlinger

Trioxys (*Fissicaudus*) Stary & Schlinger 1967 : 122. Type species : *Trioxys* (*Binodoxys*) *confucius* Mackauer.

Diagnosis : Antenna 11-segmented in female and 13-segmented in male. Propodeum areolated. Tergite I with primary and secondary tubercles (fig. 16) . Prongs beginning near the lateral base of last sternite (fig. 19).

Distribution : Palearctic and Oriental region.

Only *T. confucius* Mackauer has been known in Taiwan.

Genus **Bioxys** Stary & Schlinger

Bioxys Stary & Schlinger 1967 : 32. Type species : *Bioxys japonicus* Stary & Schlinger.

Diagnosis : Head transverse. Antenna 11-segmented in female and 13-segmented in male. Notaulix distinct at the ascendent part of mesoscutum. Wing-venation as figured (fig. 13). Propodeum areolated. Tergite I with primary tubercles. Ovipositor sheath curved downwards. Last sternite of female with one upwardly curved prong.

Distribution : Palearctic and Oriental regions.

Only an unidentified species of this genus has been known in Taiwan.

List of aphidiids and their hosts in Taiwan

Aphidius absinthii
Macrosiphoniella formosartemisiae
M. yomenae
M. yomogifoliae
Aphidius amamioshimensis
Aulacorthum nipponicum
Aphidius colemani
Hyalopterus pruni
Aphidius ervi
Acyrthosiphon pisum
Macrosiphum sp.
Aphidius gifuensis
Capitophorus sp.
Lipaphis erysimi
Myzus persicae
Myzus sp.
Sitobion ibarae
Aphidius salicis
Cavariella araliae
C. salicicola
Aphidius spp.
Sitobion ibarae
Titanosiphon neoartemisiae
Archaphidus greenideae
Greenidea ficicola
G. formosana
Bioxys sp.
Myzocallis sp.
Diaeretiella rapae
Brevicoryne brassicae
Greenidea ficicola
Lipaphis erysimi
Myzus persicae
Diaeretus leucopterus
Eulachnus thunbergii
Ephedrus lacertosus
Macromyzus woodwardi
Ephedrus nacheri
Unknown
Ephedrus niger
Uroleucon formosanum
Uroleucon sp.
Ephedrus orientalis
Hyalopterus pruni
Hyperomyzus carduellini
Ephedrus persicae
Aphis citricola
A. gossypii
Brevicoryne brassicae
Hyalopterus pruni
Lipaphis erysimi
Myzus persicae
Tinocallis ulmiparvifolii
T. viridis
Trichosiphoniella momoni
Ephedurs plagiator
Acyrthosiphon pisum
Aphis citricola
A. gossypii
A. rumicis
Brachysiphoniella montana
Cavariella araliae
Hyalopterus pruni
Hyperomyzus lactucae
Lipaphis erysimi
Macromyzus woodwardia
Macrosiphum sp.
Myzus persicae
Rhopalosiphum maidis
Sinomegoura citricola
Sitobion ibarae
Toxoptera aurantii

T. odinae
Uroleucon formosanum
U. gobonis
Ephedrus robustus
Aphis citricola
Melanaphis sacchari
Rhopalosiphum maidis
Ephedrus sp.
Cavariella salicicola
Lipolexis gracilis
Aphis citricola
A. craccivora
A. glycines
A. gossypii
A. nerri
Melanaphis sacchari
Myzus persicae
Rhopalosiphum maidis
Semiaphis heraclei
Toxoptera aurantii
T. citricidus
Lipolexis scutellaris
Aphis citricola
A. craccivora
Cavariella araliae
Pentalonia nigronervosa
Semiaphis heraclei
Toxoptera aurantii
T. citricidus
Lysiphlebia japonica
Aphis citricola
A. craccivora
A. gossypii
A. pomi
A. rumicis
Melanaphis sacchari
Rhopalosiphum maidis
Titanosiphon neoartemisiae
Toxoptera aurantii
T. odinae
Monoctonus woodwardiae
Macromyzus woodwardiae
Pauesia laticeps
Cinara sp.
Pauesia salignae
Tuberolachnus salignus
Pauesia unilachni
Cinara formosana
Schizolachnus sp.
Unilachnus sp.
Praon dorsale
Indomegoura indica
Uroleucon formosanum
U. gobonis
Praon orientale
Hyperomyzus lactucae
Praon spp.
Myzus hemerocallidis
Uroleucon formosanum
Toxares shigai
Unknown
Trioxys (Binodoxys) carinatus
Microlophium rubiformosanum
Trioxys (Binodoxys) citri (N. nudum) [24]
Aphis citricola
Trioxys (Binodoxys) communis
Aphis glycines
A. gossypii
Rhopalosiphum sp.
Trioxys (Binodoxys) formosanus (N. nudum) [24]
Acyrthosiphon pisum
Trioxys (Binodoxys) indicus
Aphis gossypii
Trioxys (Binodoxys) smilicis (N. nudum) [7]

Aphis smilacifoliae

Trioxys (Binodoxys) struma

Sinomegoura citricola

Toxoptera aurantii

Trioxys (Binodoxys) toxoptera

Toxoptera aurantii

Trioxys (Binodoxys) sp.

Aphis citricola

Trioxys (Fissicaudus) confucius

Greenidea ficicola

G. formosana

Trioxys (T.) auctus

Rhopalosiphum nympheae

R. padi

Trioxys (T.) bambusa (N. nudum) [7]

Cranaphis formosana

Trioxys (T.) shivaphis

Shivaphis celti

Shivaphis sp.

Tinocallis ulmiparvifoliae

Trioxys (T.) sp.

Chucallis bambusicola

Trioxys spp.

Acyrthosiphon pisum

Aphis citricola

List of aphids and their aphidiid parasitoids in Taiwan

Acyrthosiphon pisum

Aphidius ervi

Ephedrus plagiator

Trioxys (Binodoxys) formosanus

Trioxys sp.

Aphis citricola

Ephedrus persicae

E. plagiator

E. robustus

Lipolexis gracilis

L. scutellaris

Lysiphlebia japonica

Trioxys (Binodoxys) citri

Trioxys sp.

Aphis craccivora

Lipolexis gracilis

L. scutellaris

Lysiphlebia japonica

Aphis glycines

Lipolexis gracilis

Trioxys (Binodoxys) communis

Aphis gossypii

Ephedrus persicae

E. plagiator

Lipolexis gracilis

Lysiphlebia japonica

Trioxys (Binodoxys) communis

Trioxys (Binodoxys) indicus

Aphis nerri

Lipolexis gracilis

Aphis pomi

Lysiphlebia japonica

Aphis rumicis

Ephedrus plagiator

Lysiphlebia japonica

Aphis smilacifoliae

Trioxys (Binodoxys) smilicis

Aulacorthum nipponicum

Aphidius amamioshimensis

Brachysiphoniella montana

Ephedrus plagiator

Brevicoryne brassicae

Diaeretiella rapae

Ephedrus persicae

Capitophorus sp.
Aphidius gifuensis
Cavariella araliae
Aphidius salicis
Ephedrus plagiator
Lipolexis scutellaris
Cavariella salicicola
Aphidius salicis
Ephedrus sp.
Chucallis bambusicola
Trioxys (*T.*) sp.
Cinara formosana
Pauesia unilachni
Cinara sp.
Pauesia laticeps
Cranaphis formosana
Trioxys (*T.*) *bambusa*
Eulachnus thunbergii
Diaeretus leucopterus
Greenidea ficicola
Archaphidius greenideae
Diaeretiella rapae
Trioxys (*Fissicaudus*) *confucius*
Greenideae formosana
Archaphidius greenideae
Trioxys (*Fissicaudus*) *confucius*
Hyalopterus pruni
Aphidius colemani
Ephedrus plagiator
E. orientalis
E. persicae
Hyperomyzus carduellinus
Ephedrus orientalis
Hyperomyzus lactucae
Ephedrus plagiator
Praon orientale
Indomegoura indica
Praon dorsale
Lipaphis erysimi
Aphidius gifuensis
Diaeretiella rapae
Ephedrus persicae
E. plagiator
Macromyzus woodwardiae
Ephedrus plagiator
E. lacertosus
Monoctonus (*M.*) *woodwardiae*
Macrosiphoniella formosartemisiae
Aphidius absinthii
Macrosiphoniella yomenae
Aphidius absinthii
Macrosiphoniella yomogifoliae
Aphidius absinthii
Macrosiphum sp.
Aphidius ervi
Ephedrus plagiator
Melanaphis sacchari
Lipolexis gracilis
Lysiphlebia japonica
Ephedrus robustus
Microlophium rubiformosanum
Trioxys (*Binodoxys*) *carinatus*
Myzocallis sp.
Bioxys sp.
Myzus hemerocallidis
Praon sp.
Myzus persicae
Aphidius gifuensis
Diaeretiella rapae
Ephedrus persicae
E. plagiator
Lipolexis gracilis
Myzus sp.
Aphidius gifuensis

Pentalonia nigronervosa
Lipolexis scutellaris
Rhopalosiphum maidis
Ephedrus plagiator
E. robustus
Lipolexis gracilis
Lysiphlebia japonica
Rhopalosiphum nympheae
Trioxys (T.) auctus
Rhopalosiphum padi
Trioxys (T.) auctus
Rhopalosiphum sp.
Trioxys (Binodoxys) communis
Schizolachnus sp.
Pauesia unilachni
Semiaphis heraclei
Lipolexis gracilis
L. scutellaris
Shivaphis celti
Trioxys (T.) shivaphis
Shivaphis sp.
Trioxys (T.) shivaphis
Sinomegoura citricola
Ephedrus plagiator
Trioxys (Binodoxys) struma
Sitobion ibarae
Aphidius gifuensis
Aphidius sp.
Ephedrus plagiator
Tinocallis viridis
Ephedrus persicae
Tinocallis ulmiparvifoliae
Ephedrus persicae
Trioxys (T.) shivaphis
Titanonosiphon neoartemisia
Aphidius sp.
Lysiphlebia japonica
Toxoptera aurantii
Ephedrus plagiator
Lipolexis gracilis
L. scutellaris
Lysiphlebia japonica
Trioxys (Binodoxys) struma
T. (Binodoxys) toxopterae
Toxoptera citricidus
Lipolexis gracilis
L. scutellaris
Toxoptera odinae
Ephedrus plagiator
Lysiphlebia japonica
Tuberocephalus momonis
Ephedrus persicae
Tuberolachnus salignus
Pauesia salignae
Unilachnus sp.
Pauesia unilachni
Uroleucon formosanum
Ephedrus plagiator
E. niger
Praon dorsale
Praon sp.
Uroleucon gobonis
Ephedrus plagiator
Praon dorsale
Uroleucon sp.
Ephedrus niger

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臺灣蚜繭蜂科屬之整理[1]

周 樑 鎰[2]

中 文 摘 要

蚜繭蜂 (aphidiid) 係蚜蟲之重要寄生性天敵。該蜂之研究曾在國際間合作進行。全世界已記錄之蚜繭蜂有 39 屬，約 375 種，臺灣已記錄者僅 11 屬 32 種，寄生於 60 餘種之蚜蟲，而臺灣蚜蟲已記錄者達 269 種，可知臺灣蚜繭蜂仍有待加强詳細採集與研究。

筆者檢查本所歷年採集之蚜繭蜂標本約 6,200 隻，得 14 屬， 3 亞屬。本文將臺灣產之蚜繭蜂屬與亞屬編成檢索表，並附各屬之鑑別特徵，蚜繭蜂與寄主相互之對照表。其中 *Toxares* Haliday, *Diaeretus* Foerster 及 *Lysiphlebus* Foerster 等 3 屬爲臺灣新記錄。又 *Toxares shigai* Takada 與 *Diaeretus leucopterus* (Haliday) 爲臺灣新記錄種。

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